REMARKS

The Office Action mailed September 15, 2008 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-20 are now pending in this application. Claims 7-20 stand rejected. Claims 1-6 have been withdrawn. Claims 11 and 17 have been canceled.

The objection to the disclosure is respectfully traversed. On page 2 of the Office Action, the Examiner asserts that it is not possible "to have gap 120 serving as a dead air cavity but also having a purge flow through the cavity." However, Applicant respectfully disagrees and submits that it is entirely possible that, in one embodiment, the gap functions as a dead air cavity and, in another embodiment, the gap receives a purge flow therethrough. Specifically, one of ordinary skill would readily understand that the gap can facilitate different functions in different embodiments. However, to clarify, paragraphs [0021] and [0022] have been amended to recite that "in one embodiment" the gap functions as a dead air cavity and "in another embodiment" the gap receives a purge flow. Accordingly, Applicant respectfully requests that the objection to the disclosure be withdrawn.

The rejection of Claims 7-20 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. The Examiner asserts on page 2 of the Office Action that the recitation "to facilitate preventing a flow of fuel . . . at said upstream and downstream portions" is not supported in the specification. While Applicant respectfully disagrees and submits that the recitation is supported throughout Applicant's specification, the recitation has been removed to expedite prosecution. Accordingly, Applicant respectfully requests that the Section 112 rejection of Claims 7-20 be withdrawn.

The rejection of Claims 7 and 14 under 35 U.S.C. § 102(b) as being anticipated by Foust et al. (U.S. Pat. No. 6,418,726) ("Foust") is respectfully traversed.

Foust describes a combustor 16 that includes an annular dome that defines mixer assemblies 40. Each mixer assembly 40 includes a pilot mixer 42, a main mixer 44, and a cruise mixer 45. Pilot mixer 42 includes an annular pilot housing 46 that defines a chamber 50, and cruise mixer 45 includes injection ports 99, an axial swirler 100, and an annular housing 96 that separates pilot mixer 42 and main mixer 44. Cruise mixer 45 also includes a

radially outer surface 104 and a radially inner surface 106, such that an inner channel 102 is defined between radially outer surface 104 and radially inner surface 106. Notably, Foust does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi.

Claim 7 recites a combustor for a gas turbine engine, the combustor comprising "a venturi . . . and a secondary swirler defining an air passage circumferentially around said venturi, said secondary swirler coupled to said venturi such that a gap is defined between a radially inner surface of said secondary swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Foust does not describe nor suggest a combustor as is recited in Claim 7. Specifically, Foust does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Foust merely describes a pilot mixer that includes an annular pilot housing that defines a chamber, and cruise mixer that includes injection ports, an axial swirler, and an annular housing that separates pilot mixer and main mixer. Accordingly, for at least the reasons set forth above, Claim 7 is submitted to be patentable over Foust.

Claim 14 recites a gas turbine engine comprising a combustor comprising an annular air swirler and an annular venturi, said annular air swirler defines an air passage and is coupled to said venturi such that a gap is defined between a radially inner surface of said air swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Foust does not describe nor suggest a gas turbine engine as is recited in Claim 14. Specifically, Foust does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Foust merely describes a pilot mixer that includes an annular pilot housing that defines a chamber, and cruise mixer that includes injection ports, an axial swirler, and an

annular housing that separates pilot mixer and main mixer. Accordingly, for at least the reasons set forth above, Claim 14 is submitted to be patentable over Foust.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 7 and 14 be withdrawn.

The rejection of Claims 7-8, 11, 13-15, and 17-20 under 35 U.S.C. § 102(e) as being anticipated by Bibler et al. (U.S. Pat. No. 6,871,501) ("Bibler") is respectfully traversed.

Bibler describes a gas turbine engine 10 that includes a combustor 16. Combustor 16 includes mixer assemblies 41 that each include a pilot centerbody 54 oriented along a longitudinal axis 52 of each mixer assembly 41. An annular centerbody 43 surrounds pilot centerbody 54 and separates a pilot mixer 42 from a main mixer 44. An inner passage wall 102 of annular centerbody 43 includes a converging surface 104 that defines a venturi throat 107, and an outer throat surface 81, in combination with a radially outer surface 100 of centerbody 43, defines an annular premixer cavity 82 downstream from a swirler 140. Radially outer surface 100 includes a plurality of fuel injection ports 98 for injecting fuel radially outwardly from annular centerbody 43 into premixer cavity 82 to facilitate circumferential fuel/air mixing within main mixer 44. Notably, Bibler does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi.

Claim 7 recites a combustor for a gas turbine engine, the combustor comprising "a venturi . . . and a secondary swirler defining an air passage circumferentially around said venturi, said secondary swirler coupled to said venturi such that a gap is defined between a radially inner surface of said secondary swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Bibler does not describe nor suggest a combustor as is recited in Claim 7. Specifically, Bibler does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Bibler describes a plurality of fuel injection ports that direct fuel into a premixing

cavity downstream from a swirler. Accordingly, for at least the reasons set forth above, Claim 7 is submitted to be patentable over Bibler.

Claims 8 and 13 depend from independent Claim 7. Claim 11 has been canceled. When the recitations of Claims 8 and 13 are considered in combination with the recitations of Claim 7, Applicant submits that Claims 8 and 13 likewise are patentable over Bibler.

Claim 14 recites a gas turbine engine comprising a combustor comprising an annular air swirler and an annular venturi, said annular air swirler defines an air passage and is coupled to said venturi such that a gap is defined between a radially inner surface of said air swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Bibler does not describe nor suggest a combustor as is recited in Claim 14. Specifically, Bibler does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Bibler describes a plurality of fuel injection ports that direct fuel into a premixing cavity downstream from a swirler. Accordingly, for at least the reasons set forth above, Claim 14 is submitted to be patentable over Bibler.

Claims 15 and 18-20 depend from independent Claim 14. Claim 17 has been canceled. When the recitations of Claims 15 and 18-20 are considered in combination with the recitations of Claim 14, Applicant submits that Claims 15 and 18-20 likewise are patentable over Bibler.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 7-8, 11, 13-15, and 17-20 be withdrawn.

The rejection of Claims 9, 10 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Foust in view of Koshoffer et al. (U.S. Pat. No. 4,584,834) ("Koshoffer") is respectfully traversed.

Foust is as described above.

Koshoffer describes a combustor 10 that includes a carburetion assembly 22. The carburetion assembly 22 includes a first annular member 72 that receives a fuel injector nozzle 40. A plurality of swirler vanes 76 are radially outwardly from member 72. An annular flange 80 is secured to the radially outward portions of the swirler vanes 76. A forward portion 88 of a second annular member 86 is slidably coupled to flange 80. An aft portion 92 of member 86 defines a venturi. A plurality of second swirler vanes 94 are radially outward from aft portion 92. Notably, Koshoffer does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi.

Claim 7 recites a combustor for a gas turbine engine, the combustor comprising "a venturi . . . and a secondary swirler defining an air passage circumferentially around said venturi, said secondary swirler coupled to said venturi such that a gap is defined between a radially inner surface of said secondary swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Neither Foust nor Koshoffer, considered alone or in combination, describes or suggests a combustor as is recited in Claim 7. Specifically, neither Foust nor Koshoffer, considered alone or in combination, describes or suggests at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Foust merely describes a pilot mixer that includes an annular pilot housing that defines a chamber, and cruise mixer that includes injection ports, an axial swirler, and an annular housing that separates pilot mixer and main mixer, and Koshoffer describes a swirler that is integrally formed with a venturi such that no gap is defined between them. Accordingly, for at least the reasons set forth above, Claim 7 is submitted to be patentable over Foust in view of Koshoffer.

Claims 9 and 10 depend from independent Claim 7. When the recitations of Claims 9 and 10 are considered in combination with the recitations of Claim 7, Applicant submits that Claims 9 and 10 likewise are patentable over Foust in view of Koshoffer.

Claim 14 recites a gas turbine engine comprising a combustor comprising an annular air swirler and an annular venturi, said annular air swirler defines an air passage and is coupled to said venturi such that a gap is defined between a radially inner surface of said air swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Neither Foust nor Koshoffer, considered alone or in combination, describes or suggests a gas turbine engine as is recited in Claim 14. Specifically, neither Foust nor Koshoffer, considered alone or in combination, describes or suggests at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Foust merely describes a pilot mixer that includes an annular pilot housing that defines a chamber, and cruise mixer that includes injection ports, an axial swirler, and an annular housing that separates pilot mixer and main mixer, and Koshoffer describes a swirler that is integrally formed with a venturi such that no gap is defined between them. Accordingly, for at least the reasons set forth above, Claim 14 is submitted to be patentable over Foust in view of Koshoffer.

Claim 16 depends from independent Claim 14. When the recitations of Claim 16 are considered in combination with the recitations of Claim 14, Applicant submits that Claim 16 likewise is patentable over Foust in view of Koshoffer.

Moreover, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to replicate the claimed invention. It appears that the present rejection reflects an impermissible attempt to use the instant claims as a guide or roadmap in formulating the rejection using impermissible hindsight reconstruction of the invention. The United States Supreme Court has recently expressed concern regarding distortion caused by hindsight bias in an obviousness analysis, and notes that factfinders should be cautious of arguments reliant upon ex post reasoning. *See KSR International Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 1742 (2007). The Supreme Court also explained that, following "common sense," "familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of

multiple patents together like pieces of a puzzle." *Id.* Applicant respectfully submits that the teachings of Foust and Koshoffer do not fit together like pieces of a puzzle, but rather are two isolated disclosures that have been chosen in an attempt to replicate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection be withdrawn.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 9, 10 and 16 be withdrawn.

The rejection of Claim12 under 35 U.S.C. § 103(a) as being unpatentable over Foust in view of Campbell (U.S. Pat. No. 5,220,786) ("Campbell") is respectfully traversed.

Foust is as described above.

Campbell describes a combustor 10 that includes a swirl cup package 16. Package 16 includes a swirler 19, and a swirl cup 20 that surrounds a venturi 22. A heat shield 27 is on an inner surface 23 of the venturi 22, and a thermal barrier coating 28 is on an outer surface 29 of the venturi 22. Notably, Campbell does not describe nor suggest at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi.

Claim 7 recites a combustor for a gas turbine engine, the combustor comprising "a venturi . . . and a secondary swirler defining an air passage circumferentially around said venturi, said secondary swirler coupled to said venturi such that a gap is defined between a radially inner surface of said secondary swirler and a radially outer surface of said venturi, wherein at least one opening extends from said radially inner surface through said radially outer surface to direct air from said air passage into said gap."

Neither Foust nor Campbell, considered alone or in combination, describes or suggests a combustor as is recited in Claim 7. Specifically, neither Foust nor Campbell, considered alone or in combination, describes or suggests at least one opening that extends from a radially inner surface of an air swirler through a radially outer surface of a venturi to direct air from an air passage defined by the swirler into a gap between the swirler and the venturi. Rather, Foust merely describes a pilot mixer that includes an annular pilot housing that defines a chamber, and cruise mixer that includes injection ports, an axial swirler, and

Campbell describes a swirler coupled to a venturi such that no gap is defined between them. Accordingly, for at least the reasons set forth above, Claim 7 is submitted to be patentable over Foust in view of Campbell.

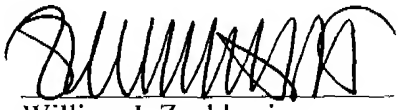
Claim 12 depends from independent Claim 7. When the recitations of Claim 12 are considered in combination with the recitations of Claim 7, Applicant submits that Claim 12 likewise is patentable over Foust in view of Campbell.

Moreover, as discussed above, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Applicant respectfully submits that the teachings of Foust and Campbell do not fit together like pieces of a puzzle, but rather are two isolated disclosures that have been chosen in an attempt to replicate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection be withdrawn.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claim 12 be withdrawn.

In view of the foregoing amendment and remarks, all of the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



William J. Zychlewicz
Registration No. 51,366
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070